REMARKS

Claims 1-20 are pending in the application.

Claims 1-7, 10-17, and 19-20 have been rejected.

Claims 1, 12, 19, and 20 have been amended. Support for these amendments can be found, at least, in paragraphs 11, 14, and 15 of the specification. No new matter has been added.

Claims 8-9 have been objected to. Final Office Action mailed December 22, 2006 (hereinafter referred to as "FOA"), pages 1 and 10.

Appreciation is expressed for the indicated allowability of claim 18. FOA, pages 1 and 10.

Rejection of Claims under 35 U.S.C. §102(b)

Claims 1-7, 10-17, and 19-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by DeKoning et al. (U.S. Patent No. 6,304,942) (hereinafter referred to as "DeKoning"), as supported by Humlicek et al. (U.S. Patent No. 5,822,782) (hereinafter referred to as "Humlicek"), which is incorporated by reference in DeKoning. Applicants respectfully traverse this rejection.

Claim 1 recites "first, second and third devices each storing a respective copy of the data volume layout description or respective modified versions thereof in respective memories of the first, second and third devices, wherein the first device is located in a different network layer than the second and third devices." This feature of claim 1 is neither taught nor suggested by the cited art.

Initially, in the Office Action mailed August 18, 2006 (hereinafter referred to as "OA"), the Examiner cited col. 7, lines 10-11 of DeKoning as teaching the above-quoted feature of claim 1. Office Action, p. 3. The cited portion of DeKoning states that the system can include on-media configuration storage called a Dacstore and incorporates Humlicek, which describes the Dacstore in more detail, by reference. Humlicek provides techniques "operable in a RAID subsystem to improve the speed and flexibility of initializing the subsystem by storing configuration and identification information in a reserved area on each disk drive in the subsystem." Humlicek, Abstract. Thus, Humlicek

describes storing configuration information for a RAID subsystem on each disk drive included within the RAID subsystem.

In response, Applicant noted that storing configuration on disk drives is clearly different from "storing a respective copy of the data volume layout description or respective modified versions thereof in respective memories of the first, second and third devices." In other words, storing information on a disk drive is clearly different than storing information in a device's memory. For at least this reason, the cited art does not teach or suggest "storing a respective copy of the data volume layout description or respective modified versions thereof in respective memories of the first, second and third devices," as recited in claim 1.

In the FOA, the Examiner cites a different portion of the references as teaching this feature of the claim. In particular, the Examiner cites col. 5, lines 20-31 of Humlicek as teaching the above-quoted feature of claim 1. FOA, p. 3. The cited portion of Humlicek provides details about how the configuration information for a RAID subsystem is stored on the disks within that subsystem:

> The present invention includes a data structure stored in a reserved area 122 on each disk drive 110 of the disk array 108. The data structure in the reserved area 122 contains information which uniquely identifies each disk drive from all other disk drives. The data structure stored in the reserved area 122 of each disk drive 110 also includes configuration information which describes each group of the disk array 108 in which the corresponding disk is a member. This group configuration information includes characteristics of the group, timestamps to identify the date/time of creation of the configured group, as well as a list of disk drive unique identification information for each disk drive 110 which is a member of the group. Humlicek, col. 5, lines 20-31.

Thus, this portion of Humlicek clearly describes how the configuration information is stored in a data structure that is in turn stored in a reserved area of a disk drive. As noted above, a disk drive (or a reserved area on a disk drive) is clearly not the same as a device's memory. Accordingly, Humlicek describes configuration information that is stored on a disk drive (within the reserved area, which is explicitly described as being part of a respective disk drive), not within the memory of a device.

On page 11 of the FOA, the Examiner states that "Humlicek specifically discloses storing data in the respective memories of the devices (in the reserved area(s) 122 on each disk), not in the respective disk drive." Applicant respectfully disagrees with this statement. Humlicek clearly describes the reserved areas as being part of the disk drives (see the above quote: "a reserved area 122 on each disk drive 110," as well as FIG. 1 of Humlicek, which shows each reserved area 122 as being part of a disk drive), and thus Humlicek is clearly describing storing information on a disk drive, not in a device's memory.

The Examiner also equates the data structure described in Humlicek with a memory. FOA, p. 11 ("Humlicek discloses in FIG. 1 a first, second, and third device, 110, which also each contain a respective memory or data structure in a reserved area 122"). Applicant again respectfully disagrees, noting that a data structure is clearly not a device's memory.

Thus, the cited portions of Humlicek and DeKonig clearly neither teach nor suggest "storing a respective copy of the data volume layout description or respective modified versions thereof in respective memories of the first, second and third devices," as recited in claim 1. Instead, the cited art merely teaches storing configuration information on disk drives. For at least this reason, Applicant respectfully requests the withdrawal of this rejection.

Additionally, the cited art neither teaches nor suggests that the first device is located in a different network layer than the second and third devices. In Humlicek and DeKoning, the components (the disk drives that include the reserved areas) equated with the first, second and third devices are all clearly located in the same network layer. Thus, this feature of claim 1 is clearly neither taught nor suggested by the cited art.

Furthermore, the cited art does not teach or suggest "transmitting data input/output (I/O) transactions between the first device and the second device; [and] transmitting data (I/O) transactions between the first device and the third device," as recited in claim 1.

In the OA, the Examiner cited col. 3, lines 36-40 of Humlicek as teaching this feature of claim 1. The cited portion of Humlicek recites: "This added flexibility in

RAID subsystem control may be used by an operator to help level the load of I/O requests across RAID subsystems or even across interconnect busses within a particular RAID subsystem." Thus, the cited portion of Humlicek describes leveling the load of I/O requests in a RAID subsystem.

Leveling the load of I/O requests in a RAID subsystem does not teach or suggest transmitting I/O transactions between devices that store volume layout descriptions. As noted above, the portion of DeKoning cited as teaching the "devices" of claim 1 simply refers to Humlicek, which in turn describes storing configuration information on disk drives. Accordingly, the Examiner appears to be equating the disk drives that store configuration information with the "devices" of claim 1. However, the disk drives in the cited portion of Humlicek do not behave in the same manner as the devices of claim 1. In particular, these disk drives do not transmit I/O transactions to other disk drives, even when the load of the I/O requests is being leveled across the RAID subsystem. Instead, I/O requests are transmitted from the host system to the storage subsystem. *See, e.g.*, the description of FIG. 7 in Humlicek. The cited portions of Humlicek and DeKoning, both alone and in combination, neither teach nor suggest transmitting I/O transactions between devices that store volume layout descriptions. Furthermore, the cited art fails to teach or suggest transmitting I/O transactions between devices that are located in different network layers.

In response to the above arguments, the Examiner states:

> Humlicek discloses in <u>column 3, lines 36-40</u> load-balancing of I/O requests in a RAID subsystem. However, this teaching anticipates the transmitting of I/O transactions (e.g., I/O requests) between the first device and the second device and between the first device and the third device. Load-balancing incorporates communication, via the controller or host of all the assigned (balanced) *devices* in a system, and in this case, with respect to I/O transactions. FOA, p. 12 (emphasis in original).

Applicants again note that the Examiner is equating the storage devices (element 110) of Humlicek with the first, second, and third devices of claim 1. Thus, the Examiner is effectively stating that Humlicek's storage devices can transmit I/O transactions between each other. However, such a feature is clearly not described in the cited portions of either Humlicek or DeKonig. Pursuant to 37 CFR § 1.104(c)(2), Applicant requests

that the Examiner indicate which elements in Humlicek and/or DeKonig the Examiner is relying on to teach the this ability.

Applicant further notes that typically, load balancing (e.g., as performed within a cluster) is performed by a controller. The controller can select which device to convey a communication to, depending on the desired load of each device. The fact that the controller can communicate with each controlled device, however, provides no evidence that the controlled devices can communicate with each other. Furthermore, the fact that a controller may be able to perform load balancing in no way suggests that the controlled devices can initiate any sort of act needed to perform load balancing (and in fact, such behavior would seem likely to undermine the controller and thus be undesirable). Accordingly, even if Humlicek teaches that an operator can level the load of I/O requests, such a statement, by itself, in no way teaches or suggests that the disk drives in Humlicek are capable of transmitting I/O transactions to each other. The Examiner has failed to provide any reason as to how Humlicek teaches or suggests that the disk drives be able to transmit I/O transactions to each other. Furthermore, it is clear that the disk drives are not devices that are located in different network layers.

Thus, Humlicek (both alone and in combination with the cited portions of DeKoning) clearly does not teach or suggest "transmitting data input/output (I/O) transactions between the first device and the second device; [and] transmitting data (I/O) transactions between the first device and the third device" where the first, second, and third device store "a respective copy of the data volume layout description or respective modified versions thereof," and where "the first device is located in a different network layer than the second and third devices." Claim 1 is further patentable over the cited art for this reason.

For at least the foregoing reasons, claim 1 is patentable over the cited art, as are dependent claims 2-7 and 10-11. Claims 12-17 and 19-20 are patentable over the cited art for similar reasons.

Allowable Claims

Claims 8 and 9 were indicated as being allowable if rewritten in independent form. Applicant respectfully submits that these claims are allowable by virtue of their dependence upon an allowable base claim.`

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephone interview, the Examiner is invited to telephone the undersigned at 512-439-5087.

Respectfully submitted,

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